

Military Medical Technology

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(Excerpts from full article)

Time matters when a heart has stopped working. Many times an electric shock is the only way to save the life. Broader availability of automated external defibrillators is having dramatic results. The military is catching on.

By Karolyn Stuver

Eight to 10 minutes. That's not much more time than it takes to make a turkey sandwich (hold the cheese and mayo, please) and slice up a fresh, crisp apple for lunch. But that may be all the time there is to save a life when someone falls victim to sudden cardiac arrest. The American Heart Association says chances of surviving such an event grow slimmer, by 7 to 10 percent, with every 60 seconds that the heart isn't doing its job. After that first critical period, there is virtually no hope. Cardiopulmonary resuscitation (CPR), when done correctly, can keep blood flowing to vital organs. However, defibrillation, which delivers an electric shock to the heart, is sometimes the only way to return the pumper to its normal rhythm.

Getting to a cardiac victim in time to deliver that life-saving shock is a serious challenge in the military environment, according to Lieutenant Colonel Michael J. Sigmon, M.C., the assistant Family Medicine Department chief at Madigan Army Medical Center in Tacoma, WA.

As one solution, Sigmon advocates broader availability of the automated external defibrillator (AED). Sigmon explained, "I was working with a physician assistant who had purchased an AED for his battalion prior to deploying to Iraq. He was with a heavy construction unit in Baghdad when one of the soldiers was electrocuted while putting up an antenna." According to Sigmon, the fact that the physician assistant had an AED saved the soldier's life. "It was a pretty cool case."

Sigmon believes situations such as the one he related, and several others that he's aware of, including two events where AEDs were not available and the victims died, prove the device's value. "We're a total

Army now," he explained. "We have folks in the reserves, maybe they are a little older, maybe they have heart problems that don't preclude them from deploying, but they are at increased risk for heart disease. There are personnel taking medication for hypertension and other medical problems that could certainly lead to a heart attack. So the idea that we have folks at risk for heart disease and people working around high-voltage equipment are all good reasons to have an AED around."

While noting that instances of electrical shock are rare, Sigmon is adamant that AEDs are necessary. "Especially signal, engineering and power-generating units that don't have a lot of medical resources to begin with, but are operating equipment where there is the potential for life-threatening shocks. Those units should have this as standard equipment. When preparing a unit for combat every ounce counts. Every dollar counts. These devices don't weigh much. They don't cost much. And in the case I cited, the technology proved itself. The kid would have died without it."

What's Out There

There are a number of AED products on the market that are designed and priced for military budgets and requirements. All the products surveyed are FDA approved. Most of the companies also offer training packages and support services to help buyers identify who and how many people should be trained, where devices should be installed and how they should be maintained.

One of the newer players in the resuscitation space is **Guilford, CT-**



based Defibtech LLC. Unlike the big three competitors, Defibtech, founded in 1999, only sells its **Lifeline AED** through distributors. The company believes this strategy allows customers to receive training and service from knowledgeable, often local, emergency care professionals, while still having access to lower cost, high-quality devices. The product has been on the market since January 2003 and comes with either a five-year or seven-year battery. The unit weighs 4.2 pounds and is, according to **John Rogers, vice president of quality and manufacturing** and a Naval Academy graduate, perfectly suited for the military. "This unit, rugged and portable as it is, is also elegantly functional and perfectly usable under adverse conditions. This [AED] would work beautifully on a ship. It's also perfect in a deployed setting and would be great to take on patrol. It weighs less than a rifle, less than four or five magazines." He ticked off Lifeline's key features, including rugged construction; simple, two-button operations; pre-connected pads; clear audio and text prompts; a handle that makes the unit easy to carry in an emergency; high-resolution lights; and CPR protocol management.

Another feature is Lifeline's remote upgrade capability. Units are updated easily and inexpensively with the insertion of consumer-grade flashcards. The baseline Lifeline sells for about \$1,495.